

The Hippocratic account of Mental Health: Humors and Human Temperament

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Abstract

Introduction: A quintessential element of Hippocratic medicine is treatment of mental diseases which was based on a detailed examination of the symptoms as well as the study of human physiology and final outcome of the diseases which is based on humoral theory.

Purpose: The aim of the work is to highlight the contribution of Hippocrates to the study of mental illness based on his theory of humors

Methodology: Our study consists of interpretations of the original text of Hippocrates including extensive observations of anatomy and physiology of human body based on humoral theory. Then the information was evaluated on the basis of modern literature in order to establish their validity. A major limitation of the research is the lack of a systemic methodology to screen the Hippocratic corpus for relevant passages which actually requires interdisciplinary research in order to determine which aspects of Hippocratic medicine can be developed.

Results: In Corpus Hippocraticum, it is highlighting that maintaining a relative proportion of humors in human body (apart from maintaining health) regulates the human temperament and its behavioral manifestations. Hippocrates, has included in his work observations not only on human physiology and diseases but also studies the environmental and geographical impact on them, thus setting the stage for holistic approaches

Conclusion: Summarizing, Hippocratic medicine and particularly his observations on mental disorders provides a clear picture of the methodology used by Hippocrates which can be a guide for the adoption of good practices for contemporary scholars and clinicians on their everyday practice.

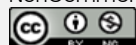
Keywords

theory of humors, environment, temperament, eucrasia, Hippocrates.

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Introduction

Hippocrates was a Greek physician of the 5th century BC, who is often referred to as the "Father of Medicine". A descendant of a priests – physicians family himself, Hippocrates was a pioneer in the scientification of Medicine. Founding the Hippocratic School of Medicine, he established medicine as an art with a scientific approach, gradually distinguishing it from theurgy (Kleisaris et al., 1995).

Medicine at the time of Hippocrates had close ties with philosophy. Hippocrates and his disciples emphasized on detecting etiological correlations through keen observation of patients and diseases. Apart from putting together the Hippocratic Oath, a standard of ethics, which is still relevant and in use today, the Hippocratic Corpus, a collective work of Hippocrates and his disciples is credited for promoting the systematic study of clinical medicine, summarizing the medical knowledge of previous schools, and establishing good practices for physicians (Kalachanis, 2011).

Among others, the Hippocratic Corpus includes an account of humors and human temperament, depicting the scientific perception of mental health at the time.

Purpose

The purpose of this article is to summarize the Hippocratic account of mental health discussing humors and human temperament.

Methodology

We studied the Hippocratic Corpus focusing on temperament and mental health. We worked on the original text of Hippocrates and retrieved information from Aristotelian Corpus where there are extensive observations of anatomy and physiology of human body. The information extracted from the texts was subsequently evaluated on the basis of modern literature in order to establish their validity.

Results

Impact of the humors on human behavior

A basic concept of Hippocratic medicine was the attempt to identify the causes of diseases in the physiology of the human body (Galen, *Quod optimus medicus sit quoque philosophus*, 54, 2-4) but also in the influence of harmful factors of the environment such as air, water and nutrition (Kalachanis, 2011;). Hippocrates considers Medicine as a pure scientific discipline that aiming at treating illnesses thus setting the basis of modern Medicine (Kirsten

et al. 2009) In order to understand the causes of illnesses he had to understand apart from the anatomy of human body he had to determine the basic elements from which is consisted. It is worth to mention that Hippocrates was taught Philosophy by Democritus (Soranus, *Vita Hippocratis*, 1) whose (along with Leucippus) major whose cosmological views referred to the atoms (not divisible) as the fundamental elements of the world (Simplicius *De caelo* 242, 18-21). In the same context Hippocrates claimed the existence of four fundamental elements or humors ($\chi\upsilon\mu\omicron\iota$) which indeed correspond to the basic elements of the Universe as described in ancient philosophy. Each humors is secreted from a specific organ (Nemesius *De natura homini* 4, 8-12) and also differ from each other (Galen, *In Hippocratis de natura hominis librum commentarii* iii 15, 66, 1-3). When the proportion of the four humors as well as their mixing is the proper, a state similar to equilibrium and called by Aristotle eucrasia (*De partibus animalium*, 673b, 26) health in human body is maintained thus introducing a more mathematical approach of medicine (Effthiadis 1995). In case the condition of the body deviates to the pathological one, a corresponding therapeutic intervention is required, depending of course on its nature (Galen, 17a 98, 25).

HUMOR	ELEMENT	ORGAN
YELLOW BILE	FIRE	LIVER
BLACK BILE	EARTH	SPLEEN
PHLEGM	WATER	BRAIN
BLOOD	AIR	HEART

Table 1: Human behavior is not an effect that comes only from the mixture of the humors but includes also the place of residence, air, water and generally climatic conditions (See Hippocrates, *De aëre aquis et locis*.)

Moreover, a basic attribute of the humors is that the predominance of everyone in man also creates a typology of characters (Table 1) (Kiersey 1998). Human behavior is not an effect that comes only from the mixture of the humors but includes also the place of residence, air, water and generally climatic conditions (See Hippocrates, *De aëre aquis et locis*.)

HUMOR	ORGAN	TEMPERAMENT	ATTRIBUTE S OF CHARACTER
Blood	Heart	Sanguine	courageous, hopeful, playful, care-free
Yellow Bile	Liver	Choleric	ambitious, leader-like,

			restless, easily angered
Black Bile	Spleen	Melancholic	despondent, quiet, analytical, serious
Phlegm	Brain	Phlegmatic	calm, thoughtful, patient, peaceful

Table 2: Humors, organs and typology of human behavior

Galenus having interpreted the typology of human character makes some interesting observations thus saying that when the melancholic (black bile) humor exceeds then the human character is malignant, indigestible and generally a repulsive case for all. On the other hand sanguine character (with blood exceeding) identified as the most forgiving and sweet character (Galenus, *De constitutione artis medicae ad Patrophilum*, 1, 280, 1-9).

Hippocrates' work includes a large number of case studies where he provides data on the symptoms, the treatment and the final outcome of the patients. Also apart from detailed observation he used methods of palpation, and auscultation in order to determine the patients condition (Rektor et al. 2013) and study in detail the symptoms. His experience in managing many medical cases also allowed him to observe environmental conditions such the place of residence that affect not only diseases but also human temperament diseases, thus observing that "Tribes living in countries rugged, elevated, and well-watered, and where the changes of the seasons are very great, are likely to have great variety of shapes among them, and to be naturally of an enterprising and warlike disposition; and such persons are apt to have no little of the savage and ferocious in their nature;" On the other hand, people living in low-lying places which are not properly ventilated and exposed into warm winds instead of cold, are not courageous and also are not capable of performing laborious enterprises (Hippocrates, *De aëre aquis et locis* 24, 4-10).

Humoral theory and mental disorders

Mental illnesses was of major interest for Hippocrates who was the first one to recognize their different types using a terminology which is used even in modern science such as Mania, Melancholy, Phrenitis, Insanity, Disobedience, Paranoia, Panic, Epilepsy and Hysteria (Kleisaris et al. 2014). His methodology apart from managing case studies was to explain their causes to the physiology of the human body and at the same

time to reject any divine intervention. A typical case is the issue of epilepsy which the people of his time called sacred, that is, they considered it as sent by God which the people of his time called sacred, that is, they considered it sent by God because of its strange symptoms. This tactic was established according to Hippocrates by various magicians and purists who, although they show reverence in reality, deceive people and to hide their ignorance about the causes of the disease they used God as an excuse. God also according to Hippocrates could never infect a body (Hippocrates, *De morbo sacro*, I, 2-24).

Currently, it is established that the onset of epilepsy is linked to a paroxysmal alteration of brain function. Excessive and hypersynchronous discharge of neurons in the brain results to an "epileptic seizure". "Epilepsy" is the condition of recurrent, unprovoked seizures. Epilepsy has numerous causes – genetic and environmental, intrinsic and extrinsic, but its onset indicates a pattern of brain dysfunction (Shorvon et al. 2011; Stafstrom & Carmant, 2015) as well as brain injuries and ischemic damages (Reid & Roberts, 2005).

Actually in ancient Greek literature there are many mentions that match the symptoms not only of epilepsy but of mental illnesses. Such a case is narrated by Herodotus about the Persian king Cambyses, who went mad thus killing his brother Smerdis, (*Historiae*, III, 30) and also committed many other atrocities and crimes. The cause for these actions was the sacred illness since he was born (*Historiae*, III, 33). Hippocrates although considers brain physiology as the cause for this disease (*De morbo sacro*, VI).

Apart from the explanation of epilepsy Hippocrates tries to explain melancholia which is directly related to black bile and people who suffer from this illness have symptoms of bad mood (*Aphorismi* VI, 23, line 2) as well as dangerous symptoms such as instillation of liquids inside the body (*ἄποσκήψεις*) and apoplexies (mania) while their lingual expression becomes more interperate (*ἄκρατης*) (*Aphorismi* VII, 40, 1). Also in a modern interpretation Hippocratic theory on melancholia is mentioned that patients with an excess of black bile may suffer from epilepsy, seizures and depression in epilepsy and depression. The clinical phenotype of black bile excess depends on the "direction" of the malady; if it bears upon the body, epilepsy, if upon the intelligence, depression". Hippocrates' claim that "epileptics become melancholics" resonates with contemporary knowledge, given that depression is the most frequent psychiatric comorbidity epilepsy (Rektor et al. 2013). Also Galen mentions several cases of phrenitis (*φρενίτις*) and

insanity (παράφροσύνη) a disease similar to μανία (mania) which also interpreted as insanity (Sani et al. 2017) or as a furious attitude, an acute mental condition in the absence of fever (Routh, 1988). These situations may result from yellow bile and black bile (Galenus, *De locis affectis libri vi VIII*, 178, 5-9 and *In Hippocratis prorrheticum i commentaria XVI*, 545)

Discussion

Despite its scientific methodology, Medicine at the era of Hippocrates lacked the technical means necessary to conduct research, investigate and establish diagnoses. The methodology of communicating science was also different taking into account the negative views of major intellectuals of the era such as Socrates on books. The Hippocratic account of temperament contributed to rationalizing mental health and illnesses. At that time, conditions such as epilepsy were considered as “sacred illnesses” indicating the popular belief in their divine causes and the – equally – popular disbelief in the ability of physicians to diagnose and treat them.

Nowadays, mental health is facing a wealth of controversies attributed to intrinsic and extrinsic factors of the field. Scholars of the field have pointed out the lack of funding, the gap between basic and translational research, the limited access to appropriate mental health care as well as the widespread stigma of mental illnesses in modern societies. Rationalizing mental illness and establishing a trust between specialized healthcare practitioners and the public is a challenge that contemporary scientists face (Wainberg et al., 2017).

It appears that this challenge is what medicine today has in common with Hippocratic medicine in terms of mental health. Although humors are no more relevant, the interaction between environmental factors and mental wellbeing is still puzzling scientists. Despite the fact that black bile is not the cause of depression, the comorbidity of depression with seizures or mania are quite relevant not only with regard to treatment but also with regard to prevention and early diagnosis.

Limitations of the study/Strengths of the study

The potential of this study is limited due to the lack of a systemic methodology to screen the Hippocratic corpus for relevant passages. In a broader sense, the fact that ancient texts might have been lost weakens our assessment of the Hippocratic account of mental health. On the

other hand, the fact that native Greek speakers with backgrounds in Classics and Medicine share authorship enhances the comprehension and interpretation of these passages.

Conclusions (and Future Work)

Revisiting the Hippocratic account of mental health can be a source of inspiration and good practices for contemporary scholars and clinicians. Such good practices include but are not limited to empathetic communication with patients, thorough history taking and communication of patients' narratives with colleagues. Future studies may identify such practices and investigate their feasibility and efficacy in contemporary mental health facilities.

Conflict of interest

The authors declare no conflict of interest with regard to this study.

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